URCHIN Project: Underwater Research Coralligenous Habitat In Naples

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This study presents the results of the URCHIN Project (Spoke8 NBFC), which focused on the investigation of coralligenous habitats within the Gaiola Underwater Park Marine Protected Area (MPA) and the Gaiola-Nisida Seabed Special Area of Conservation (SAC). The primary objective was to analyze the conservation status of these biocoenoses, which cover approximately 190.000m^2, as well as assess their human impact.

Four sites were examined: the Cavallara shoal, both inside and outside the MPA; the Nisida shoal, partially within the boundaries of the SAC; and the Badessa shoal, outside both the MPA and the SAC.

A first phase of analysis, aimed at assessing the ecological status of the habitat, was conducted through underwater surveys using the STAR protocol (STANdaRdized coralligenous evaluation procedure). Ecological quality was assessed using the ESCA, COARSE, and IICA indices.

These underwater surveys were complemented by a surface campaign using a Remotely Operated Vehicle (ROV). The aim was to assess the impact of human activities on the four coralligenous sites present, by acquiring data on the type and distribution of anthropogenic degradation elements. The ROV surveys allowed a total of approximately 18.400m of seabed to be explored. The presence of active and abandoned fishing gear was detected at all sites outside the MPA, including the widespread presence of polypropylene mesh pipes from the local mussel farm.

However, the greatest impact on the entire area is the wastewater bypass discharge located at Cala Badessa: sewage debris, whose matrix consists of disposable polyester wipes and sanitary pads, constitutes 57% of all degradation elements. Furthermore, on the MPA's seabed, along the western side of Cavallara, they extend for 7.000m².

Overall, the coralligenous associations in the area are still in reasonable condition, however, their fragile balance is seriously threatened unless rapid action is taken to close the sewer outlet.